No. 7500074

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Asgrow Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA

'DELI'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 29th *day of* October *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
~~XP C62~~ DELI HF 9/3/76	Pea	PV NUMBER 7500074
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 3.13.75 / TIME 10 A.M.
Pisum sativum	Leguminosae	FEE RECEIVED $250 / BALANCE DUE $—
	5. DATE OF DETERMINATION	$250 / $—
	1973	$250 / $—

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Asgrow Seed Company	Kalamazoo, Michigan 49001	(616) 382-4000

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Delaware	March 22, 1968

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

~~Allen R. Trotter~~ John A. Batchez HF 4/1/76
Asgrow Seed Company
Kalamazoo, Michigan 49001

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Botanical Description of the Variety
- [X] 13C. Exhibit C, Objective Description of the Variety
- [X] 13D. Exhibit D, Data Indicative of Novelty
- [X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

March 10, 1975
(DATE)

Allen R. Trotter
(SIGNATURE OF APPLICANT)

(DATE)

1
(SIGNATURE OF APPLICANT)

AMENDED EXHIBIT A

ORIGIN AND BREEDING HISTORY OF ~~XP-662~~ DELI 9/7/76

1964 Original cross - Alaska 10 x Alsweet.

1965 F_1 grown - ARC
F_2 grown - SEBS during fall/winter season.

1966 F_3 grown. Single vine selections made.
F_4 grown - SEBS - reselected.

1967 F_5 grown. Reselected. Observation trial.
F_6 grown - SEBS.

1968 Small increase

1969 Small increase. Reselected.

1970 Increase single vine selections.

1971 Small increase.

1972 Yield trials. Increase in Mexico fall/winter season.

1973 Yield trial. Increase. 300 single vine selections were made for testing on a progeny basis. Designated ~~XP-662~~. DELI

1974 Yield trials throughout company. Sampling outside company. Increase.

Single vine selections planted on a progeny basis. Each progeny evaluated for trueness to type. Any progeny thought to be off-type was removed completely. Remaining progenies harvested on a bulk basis and this has become our basic seed stock.

This line is stable, uniform and breeding true.

J. D. Atkin
January 8, 1976

7500074

EXHIBIT B

BOTANICAL DESCRIPTION OF DELI ~~XP-C62~~ PEA 7/7 9/7/76

DELI
~~XP-C62~~ is a relatively small sieve double podded Alsweet canner pea. It flowers on the tenth node and reaches 100 tenderometer in about 1250 heat units (1238 in 1974) at Twin Falls. The plant habit is indeterminate with a slim stem which does have some branching. The internodes are straight.

The light green leaflets are marbled and have no wax film. There are two leaflet pairs per leaf. The non-clasping stipules are the same color as the leaflets and also marbled. They are larger than the leaflets. The flower color is white.

The light green pods are straight with blunt ends and have a smooth shiny surface. They are borne primarily as doubles with some triples and singles and an occasional four under good growing conditions.

At 95-100 tenderometer the berries are light green in color with a three year average sieve size of 2.56 (2.81 in 1974). The dry seeds are flattened with a dull wrinkled surface. The dry seeds are blue-green in color and have no color pattern. The hilum color is tan and the cotyledon color green.

DELI
~~XP-C62~~ has been tested and found resistant to Wilt. There is no reason to believe that ~~XP-C62~~ is resistant to aphids or other insects.

DELI
~~XP-C62~~ is a rather typical Alsweet except it is double podded and somewhat smaller sieve size.

Exhibit B is written from several years experience and is thus rather generalized due to the fact that conditions vary from year to year. Exhibit C is compiled from results of a one year replicated trial planted especially for PVP measurements where varieties can be compared in side by side plantings. Exhibits B and C therefore, compliment each other and may vary slightly.

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-14
(5-15-74)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Pea)

OBJECTIVE DESCRIPTION OF VARIETY

PEA *(PISUM SATIVUM)*

NAME OF APPLICANT(S)
ASGROW SEED COMPANY
ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

VARIETY NAME OR TEMPORARY DESIGNATION
~~XP-C62~~ DELI 77 9/7/76

FOR OFFICIAL USE ONLY
PVPO NUMBER 7500074

Place the appropriate number that describes the varietal character in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[1] 1 = GARDEN 2 = FIELD 3 = EDIBLE-PODDED

2. MATURITY:

[1][0] Node number of first bloom: [0][6][7] No. of days to processing [1][2][4][0] Heat Units

[ ][ ] No. of days *Earlier* than . . . [ ] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[0][5] No. of days *Later* than . . . . [1] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

3. PLANT HEIGHT:

[0][4][9] CM. HIGH

[0][6] Cm. *Shorter* than . . . . . [2] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[ ][ ] Cm. *Taller* than . . . . . [ ] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

4. VINE:

[2] Habit: 1 = DETERMINATE 2 = INDETERMINATE [1] Stockiness: 1 = SLIM (Alaska) 2 = MEDIUM (Thomas Laxton WR) 3 = HEAVY (Alderman)

[2] Branching: 1 = NONE (Alaska) 2 = 1–2 BRANCHES (Little Marvel) 3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar

[1] Internodes: 1 = STRAIGHT 2 = ZIG ZAG [1][4] NUMBER OF NODES

5. LEAFLETS:

[1] Color: 1 = LIGHT GREEN (Alaska WR) 2 = MED. GREEN (Thomas Laxton WR) 3 = DARK GREEN (Alderman) 4 = OTHER (Specify)

[1] Wax: 1 = NONE 2 = LIGHT 3 = MEDIUM 4 = HEAVY [2] 1 = NOT MARBLED 2 = MARBLED (Alaska)

[3] Number of leaflet pairs: 1 = NOT PAIRED 2 = ONE 3 = TWO 4 = THREE OR MORE

6. STIPULES:

[2] 1 = LACKING 2 = PRESENT [1] 1 = NOT CLASPING 2 = CLASPING

[2] 1 = NOT MARBLED 2 = MARBLED [3] Size (Compared with leaflets): 1 = SMALLER 2 = SAME 3 = LARGER

[2] Color (Compared with leaflets): 1 = LIGHTER 2 = SAME 3 = DARKER

7. FLOWER COLOR:

[1] VENATION [1] STANDARD [1] WING [1] KEEL 1 = WHITE 2 = GREENISH 3 = LAVENDER 4 = PURPLE 5 = RED 6 = OTHER (Specify) _____

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XP-C62

8. PODS:

[1] Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED [2] End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)

[1] Color: 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman) 4 = OTHER (Specify) _____

[1] Surface: 1 = SMOOTH 2 = ROUGH [1] Surface: 1 = SHINY 2 = DULL

[4] Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) _____

[0 5] CM. LENGTH [1 2] MM. WIDTH (Between sutures) [0 6] NO. SEEDS PER POD

9. SEEDS (95–100 Tenderometer):

[1] Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) _____

Seive: %	1	2	3	4	5	6	7	8	AVERAGE
	15	21	35	26	03				281

SEEDS (Dry, Mature):

[1] Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED

[3] Surface: 1 = SMOOTH 2 = DIMPLED 3 = WRINKLED [2] Surface: 1 = SHINY 2 = DULL

[1] Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED

[6] Primary Color: 1 = CREAMY–WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN 4 = MEDIUM GREEN 5 = DARK GREEN 6 = BLUE–GREEN 7 = YELLOW 8 = BROWN 9 = RED

[ ] Secondary Color: 10 = GRAY 11 = BLACK

[2] Hilum Floor Color: 1 = WHITE 2 = TAN 3 = BLACK [1] Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE

[1 8] GRAMS PER 100 SEEDS

10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[2]	FUSARIUM WILT	[0]	NEAR–WILT	[0]	DOWNY MILDEW
[0]	ASCOCHYTA BLIGHT	[0]	POWDERY MILDEW	[0]	BACTERIAL BLIGHT
[0]	MOSAIC	[0]	PEA ENATION MOSAIC	[0]	YELLOW BEAN MOSAIC
[0]	OTHER (Specify) _____				

11. INSECT: (0= Not Tested; 1 = Susceptible; 2 = Resistant)

[0] APHIDS [ ] OTHER (Specify) _____

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	#4683	Fresh Seed Color	#4683
Leaf Color	#4683	Mature Seed Color	#4683
Pod Color	#4683	Seed Shape	#4683
Pod Shape	#4683	Plant Habit	#4683

COMMENTS:

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

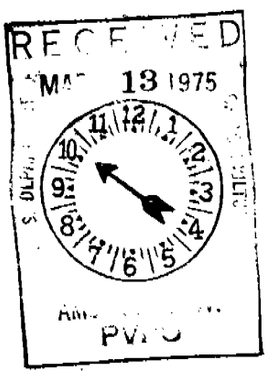
13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.



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AMENDED EXHIBIT D

PROOF OF NOVELTY OF DELI ~~XP-C62~~ 9/7/76

DELI
~~XP-C62~~ is quite typical of Alsweet varieties except it is double podded and also somewhat smaller sieve size than other Alsweet varieties.

There are three genes which influence starch and sugar content in peas. One gene causes much of the sugar to be converted to starch and produces the smooth seed typical of Alaska peas. Another gene causes much of the sugar to remain as sugar and produces the wrinkled seed typical of sweet canner and freezer peas. A third gene is intermediate in its effect and this is the true Alsweet type.

There are several Alsweet varieties under the name Alsweet plus a number and also the variety 4683. All of these varieties are very similar and all carry the third gene mentioned above. All of these varieties are almost 100% single podded whereas ~~XP-C62~~ DELI is quite highly double podded.

In pea breeding Asgrow counts the number of pods and seeds on the first three nodes of ten plants selected at random as a preliminary measure of yield potential. This data has proved to be very valuable in describing varieties. Data were not obtained in 1973 but data from 1972 and 1974 are summarized below:

Pods and Seeds Per Plant on Ten Plants - First Three Nodes Only

	PODS			SEEDS		
	TOTAL	PER PLANT	STANDARD ERROR	TOTAL	PER POD	PER PLANT
1972						
DELI ~~XP-C62~~	48	4.8	.26	236	4.9	23.6
Alsweet 49	31	3.1	.09	182	5.9	18.2
No. 4683	31	3.1	.09	171	5.5	17.1
1974						
DELI ~~XP-C62~~	43	4.3	.26	174	4.0	17.4
Alsweet 49	31	3.1	.09	173	5.5	17.3
No. 4683	34	3.4	.31	173	5.1	17.3

The data above indicate that DELI ~~XP-C62~~ produces more double pods, but less seeds per pod than 4683 or Alsweet 49. It is impossible to calculate standard errors on seed per pod or per plant as all pods from the ten plants were threshed as a bulk.

DELI
~~XP-C62~~ definitely produces more double pods and in addition, at processing maturity the sieve size is considerably smaller. Data from four years yield trials are given below. Each figure is the average of two replications.

	DELI ~~XP-C62~~		ALSWEET 49		4683	
	TDR.	SIEVE SIZE	TDR.	SIEVE SIZE	TDR.	SIEVE SIZE
1972	96	2.52	100	3.16	101	3.42
1973	94	2.36	95	2.91	96	3.26
1974	97	2.80	100	2.90	96	2.77
1975	92	2.92	101	3.65	98	3.72
Average	95	2.65	99	3.16	98	3.29

Sieve size is not an absolute value. It is influenced by moisture, temperature, maturity, and probably other factors. The season of maturity of the above varieties is practically identical and the stage of maturity as measured by the tenderometer was very nearly the same. The above data indicate that ~~XP-662~~ DELI is approximately one half size sieve smaller than the other two varieties.

Challenge is sold and accepted as an Alsweet and is somewhat similar to Alsweet varieties. However, it is genetically a true sweet and not an Alsweet. It does not have the intermediate gene but the gene found in the sweet varieties.

~~XP-662~~ DELI is a true Alsweet in that it has the Alsweet gene for sugar.

JDA/kw
1/8/76

75000 74

EXHIBIT E

Statement of the Basis of Applicant's Ownership

Pea, ~~XP C62~~ DELI HT 9/1/76

Pea, ~~XP C62~~ DELI, was originated and developed by Dr. C. G. Briggs and Dr. John D. Atkin, Asgrow Plant Breeders. By agreement between employee and Asgrow Seed Company, all rights to any invention, discovery, or development made by an employee are assigned to the company. No rights to such invention, discovery, or development are retained by the employee.